29.   (As Filed) The system of Claim 28, wherein said plurality of feature vectors comprises at least two feature vectors taken from the group consisting of an emotional quality vector, a vocal quality vector, a sound quality vector, an ensemble quality vector, a genre vector, an instrument vector, and a situational vector, wherein said combined music space comprises music spaces corresponding to said at least two feature vectors.

30.   (As Filed) The system of Claim 28, wherein said music piece is assigned a first location in said combined music space proximate to a second locations assigned to a second music piece having a second plurality of feature vectors defined by similar by a second set of music attributes similar to said first set, said first and said second locations forming a cluster.

31.   (As Filed) The system of Claim 20, wherein said plurality of feature vectors are each formulated using responses to a plurality of questions asked of a plurality of music listeners after said plurality of music listeners are played a plurality of music samples.

32.   (As Filed) The system of Claim 1, further comprising a music space, wherein each of said feature vectors provides a location for said plural music samples within said music space, said inferential engine comparing said plurality of feature vectors using said locations.

<div align="center">REMARKS</div>

Claims 1-17 and 19-32 are pending. Claims 1, 15 and 19 have been amended. Applicants' request reconsideration and reexamination of the pending claims.

Rejection under 35 U.S.C. §102(b):

Claims 1-17 and 19-32 are rejected under 35 U.S.C. §102(b) as being fully met by Cluts (USPN 5,616,876). Applicants respectfully overcome the rejection as follows.

The Examiner states:

> Cluts discloses the creation of a playlist of musical songs.
> The "more like" function, the use of a seed song and the style
> tables read on applicant's feature vectors for the provision of the
> playlist reading on applicant's inferential engine. The production

of the playlist involves subjectivity and the emotional feelings of the user.

Applicants submit that the disclosure in Cluts does not teach or suggest Applicants' invention as set forth in Claim 1. Respectfully, Applicants believe that the alleged correspondence between the "more like" function, the use of a seed song and the style tables do not read on Applicants' feature vectors nor on the inferential engine.

Applicants' Claim 1 sets forth a plurality of feature vectors including values defining perceived music attributes of a music sample, where each of the plurality of feature vectors defines a location of the music sample within a music space; and an inferential engine for comparing the plurality of feature vector defined locations of plural music samples to determine a spatial proximity to a reference location defined by user entered search parameters from which to generate a playlist for said user. Applicants' could find no teaching or suggestion in Cluts of using feature vectors to define a location within a music space where an inferential engine could be used to compare the locations to a reference location.

In contrast, the style tables disclosed in Cluts provide information about a single dimensional characteristic of music. This characteristic is associated with a number of different "styles." The importance of each style to the description of the song is reflected by weighting each style as it pertains to each song (Cluts, col. 14, lines 39-44). Cluts discloses a framework where a set of editorial, hand-coded data concerning styles of music is available to a system. Cluts teaches that the data is limited to the styles of music and specifically, styles assigned at 2 levels: to an artist, and possibly to an album (Cluts, col. 19, lines 11-29). The user of the system selects songs using by selecting the permissible styles of music, and by specifying a seed song and asking for songs with similar styles (the "more like" function). The system then returns a set of candidate songs that the user can then edit, (i.e., choose to include or exclude from the play list). For example, with no intent to limit the invention, suppose a user is interested in "happy, up tempo country music songs". Within the Cluts system, the user inputs a country song that the user enjoys. If the listener is not very familiar with country music, and hence will not recognize any of the songs produced in the play list, the user will not be able to include happy up tempo songs and exclude others because information about which songs are happy and up tempo is not available within the system.

In contrast to Cluts, continuing the above example, Applicants' Claim 1 sets forth feature vectors, which define a music space that because of the values attributed to these feature vectors would include music samples having locations in the music space that

corresponds to happy, up tempo country music. The proximity of these locations is determined relative to a reference location that is defined by the search request (*i.e.*, happy, up tempo, country music) to determine if the music sample should be presented in a playlist for a user that only includes happy, up tempo country music.

Claim 1 also sets forth an inferential engine for comparing the locations of plural music samples to determine a spatial proximity to a reference location defined by user entered search parameters from which to generate a playlist for said user. Applicants submit that the inferential engine involves a set of functions that operate on a set of multidimensional features of both songs and learned preferences and attributes of the user in order to provide play lists to each user. The inferential engine can operate on a quantity and kind of information that is not available in the Cluts system. Applicants could find no teaching or suggestion of an inferential engine as claimed in Claim 1.

Applicants would like to point out to the Examiner that Cluts seems to teach away from the invention described in the present application. For example, at col. 19, lines 54-64 the Cluts patent discloses:

> *Finally, those skilled in the art will appreciate that the present invention provides distinct advantages over various other computer based processes that could be used to identify similar songs. For example, it is possible to implement a "more like" engine based on the computer analysis of rhythm, tempo, etc. However, such an approach would require relatively powerful computer processors, and would require that all of the songs in the audio content database by pre-analyzed. Furthermore, such a system may not be predictable, because most listeners would not equate jazz at 120 beats per minute with classical at 120 beats per minute.*

Using the feature vectors to provide a location of a music sample in a music space based on music attributes (i.e., rhythm, tempo, etc.) and, using an inferential engine to determine a spatial proximity of the locations to a reference location defined by user input parameters (e.g., jazz music at 120 beats per minute, heavy saxophone), Applicant's system set forth in Claim 1 solves the problems that Cluts outlines in the above paragraph as beyond the scope of his invention. Accordingly, the features of Claim 1 are not anticipated by Cluts and Claim 1 is allowable over the cited reference.

Regarding Claim 15, the claim sets forth a user interface for receiving a user request for a music playlist, where the user request is formulated into a search vector value that defines a reference location. Claim 15 also sets forth a plurality of feature vectors defining feature vector values corresponding to perceived attributes of music, where each of the

plurality of feature vectors defines a location of a music sample within a music space; and an inferential search engine for generating a playlist of selected music, the music selection being made by determining a spatial separation between each of said feature vector defined locations and said reference location, said playlist including music samples determined to have a preselected range of spatial separation from said reference location.

Applicants could find not teaching or suggestion of a user interface for receiving a user input, which can be formulated into a search vector value. In contrast, Cluts teaches using a "more like" function, which "uses the current song as a 'seed song' and selects other songs that match the style criteria associated with the seed song." (Cluts, col. 17, lines 10-12). Moreover, Applicants' could find no teaching or suggestion in Cluts of using feature vectors to locate music samples in a music space, such that the locations can be compared to a reference location. For these reasons and for many of the reasons stated above regarding Claim 1, Claim 15 is allowable over the cited reference.

Claim 20 sets forth a plurality of feature vectors defined by a first set of music attributes allocated to a music piece; and a modeling module which creates a plurality of music spaces by performing a similarity analysis of said feature vectors, said similarity analysis establishing boundaries for said music spaces. For the reasons stated above, Applicants could find no teaching or suggestion in Cluts of feature vectors. In addition, there is no teaching of a modeling module that creates a plurality of music spaces by performing a similarity analysis. In contrast, Cluts discloses a system in which songs are classified according to style. Because music in Cluts is classified according to a single dimension, the problems that arise when music is simultaneously classified according to a number of dimensions do not arise in Cluts, and thus Cluts makes no mention of them. Claim 20 sets forth creating a music space using the similarity between songs in such multi-attribute situations. Accordingly, Claim 20 is allowable over the cited reference.

Claims 2-14 and 32 depend from Claim 1 and are therefore allowable for at least the same reasons as Claim 1 as well as for the novel features which they add. Claims 16, 17, and 19 depend from Claim 15 and are therefore allowable for at least the same reasons as Claim 15 as well as for the novel features which they add. Claims 21-31 depend from Claim 20 and are therefore allowable for at least the same reasons as Claim 20 as well as for the novel features which they add.
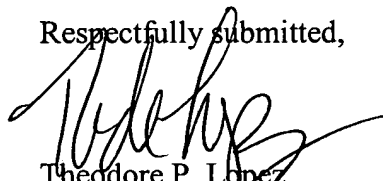
CONCLUSION

For the above reasons, pending Claims 1-17 and 19-32 are now in condition for allowance and allowance of the application is hereby solicited. If the Examiner has any questions or concerns, the Examiner is requested to telephone Applicant's Attorney at 949-718-5200.

EXPRESS MAIL LABEL NO:
EL 849 434 605 US

Respectfully submitted,

Theodore P. Lopez
Attorney for Applicant(s)
Reg. No. 44,881

752349

-10-

Serial No. 09/532,196

Attachment A

The following is a marked up version of the amended set of pending claims in accordance with 37 CFR § 1.121(c)(1)(ii).

1. (Twice Amended) A system for searching music comprising:

a plurality of feature vectors <u>including values</u> defining perceived music attributes of a music sample, <u>each of said plurality of feature vectors defining a location of said music sample within a music space</u>; and

an inferential engine for comparing said plurality of feature vector[s] <u>defined locations</u> of plural music samples <u>to determine a spatial proximity to a reference location defined by</u> [to] user entered search parameters <u>from which</u> to generate a playlist for said user.

15. (Twice Amended) A system for searching music based upon music content, comprising:

a user interface for receiving a user request for a music playlist, said user request being formulated into a search vector value <u>which defines a reference location</u>;

a plurality of feature vectors defining feature vector values corresponding to perceived attributes of music<u>, each of said plurality of feature vectors defining a location of a music sample within a music space</u>; and

an inferential search engine for generating a playlist of selected music, said music selection being made by [comparing] <u>determining a spatial separation between each of said feature vector defined locations and said reference location, said playlist including music samples determined to have a preselected range of spatial separation from said reference location</u> [said plurality of feature vector values to said search vector value].

19. (Twice Amended) The system of Claim 15, further comprising:

a modeling module for creating a <u>similarity</u> music space by performing a similarity analysis of said feature vector values, [wherein] said similarity analysis <u>establishing</u> [establishes] a boundary for said <u>similarity</u> music space, said feature vector values indicating a location for said music within said <u>similarity</u> music space [and wherein said comparison of said feature vector values to said search vector value comprises] <u>wherein said modeling</u>

module determines [determining] the proximity of said music locations to [a] said reference location within said similarity music space [indicated by said search vector value].